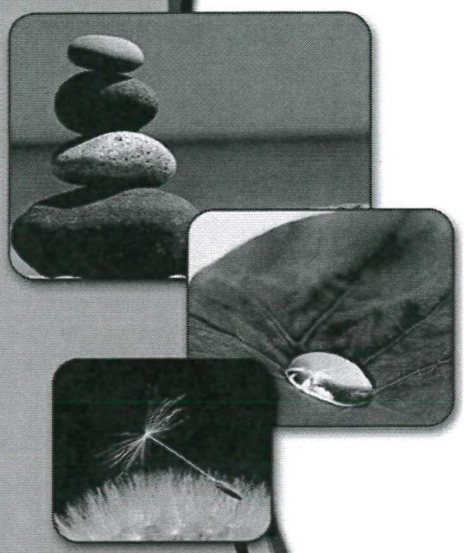

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

CHECKED FOR COMPLETENESS
OF PARAMETERS ORDERED BY:

TestAmerica Job ID: 480-34803-1
Client Project/Site: Olin Chemical Wilmington Groundwater
Sampling Event: Groundwater Quarterly (2, 5, 8, 11)

For:
Olin Corporation
PO BOX 248
Charleston, Tennessee 37310-0248

Attn: Mr. James Cashwell

Authorized for release by:
4/5/2013 11:08:50 AM

Becky Mason
Project Manager II
becky.mason@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-34803-1

Laboratory: TestAmerica Buffalo

Narrative

CASE NARRATIVE

Client: Olin Corporation

Project: Olin Chemical Wilmington Groundwater

Report Number: 480-34803-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 03/22/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.0 C.

Sample COC lists set OC-PZ-17RR. No volume for this set was received by lab. Sample was not collected by client. Client forgot to cross off on COC.

Note: All samples that require thermal preservation are considered acceptable if the arrival temperature is within the method's specified temperature range or for general analysis, ranging from 6°C to just above the freezing temperature of water. Samples that are hand delivered, immediately following collection, may not meet these criteria; however, they will be considered acceptable according to NELAC and State standards, if there is evidence that the chilling process has begun, such as stored and transported to the laboratory on ice.

TOTAL METALS (ICP)

Samples OC-GW-202D (480-34803-1), OC-GW-202S (480-34803-2), OC-GW-25 (480-34803-3), OC-GW-78S (480-34803-4), OC-GW-79S (480-34803-5), OC-PZ-16RR (480-34803-6), OC-PZ-18R (480-34803-8), OC-PZ-24 (480-34803-9) and OC-PZ-25 (480-34803-10) were analyzed for total metals (ICP) in accordance with EPA SW-846 Method 6010. The samples were prepared and analyzed on 03/22/2013.

At the request of the client, an modified MCP analyte list was reported for this job

No difficulties were encountered during the metals (ICP) analyses.

All quality control parameters were within the acceptance limits.

SPECIFIC CONDUCTIVITY

Samples OC-GW-202D (480-34803-1), OC-GW-202S (480-34803-2), OC-GW-25 (480-34803-3), OC-GW-78S (480-34803-4), OC-GW-79S (480-34803-5), OC-PZ-16RR (480-34803-6), OC-PZ-18R (480-34803-8), OC-PZ-24 (480-34803-9) and OC-PZ-25 (480-34803-10) were analyzed for specific conductivity in accordance with SM20 2510B. The samples were analyzed on 03/27/2013.

No difficulties were encountered during the conductivity analyses.

All quality control parameters were within the acceptance limits.

Job ID: 480-34803-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

ANIONS (28 DAY HOLD TIME)

Samples OC-GW-202D (480-34803-1), OC-GW-202S (480-34803-2), OC-GW-25 (480-34803-3), OC-GW-78S (480-34803-4), OC-GW-79S (480-34803-5), OC-PZ-16RR (480-34803-6), OC-PZ-18R (480-34803-8), OC-PZ-24 (480-34803-9) and OC-PZ-25 (480-34803-10) were analyzed for anions (28 day hold time) in accordance with EPA Method 300.0. The samples were analyzed on 03/23/2013 and 03/26/2013.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 109048 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Refer to the QC report for details.

The following samples were diluted to bring the concentration of target analytes within the calibration range: OC-GW-202D (480-34803-1) [20X], OC-GW-202S (480-34803-2)[5X], OC-GW-25 (480-34803-3)[5X], OC-GW-78S (480-34803-4)[10X], OC-GW-79S (480-34803-5)[20X], OC-PZ-16RR (480-34803-6)[20X], OC-PZ-18R (480-34803-8)[5X], OC-PZ-24 (480-34803-9)[10X] and OC-PZ-25 (480-34803-10)[10X]. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the anions analyses.

All other quality control parameters were within the acceptance limits.

AMMONIA

Samples OC-GW-202D (480-34803-1), OC-GW-202S (480-34803-2), OC-GW-25 (480-34803-3), OC-GW-78S (480-34803-4), OC-GW-79S (480-34803-5), OC-PZ-16RR (480-34803-6), OC-PZ-18R (480-34803-8), OC-PZ-24 (480-34803-9) and OC-PZ-25 (480-34803-10) were analyzed for ammonia in accordance with EPA Method 350.1. The samples were analyzed on 03/26/2013.

The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Refer to the QC report for details.

The following samples were diluted to bring the concentration of target analytes within the calibration range: OC-GW-202D (480-34803-1) [250X], OC-GW-202S (480-34803-2)[25X], OC-GW-25 (480-34803-3)[25X], OC-GW-78S (480-34803-4)[25X], OC-GW-79S (480-34803-5) [250X], OC-PZ-16RR (480-34803-6)[100X], OC-PZ-18R (480-34803-8)[50X], OC-PZ-24 (480-34803-9)[25X] and OC-PZ-25 (480-34803-10) [25X]. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the ammonia analyses.

All other quality control parameters were within the acceptance limits.

MassDEP Analytical Protocol Certification Form

Laboratory Name: **TestAmerica Buffalo** Project #: **480-34803-1**

Project Location: **Olin Chemical Wilmington MA** RTN:

This form provides certifications for the following data set: list Laboratory Sample ID Number(s):

480-34802-1[1-10]

Matrices: [X] Groundwater/Surface Water [ ] Soil/Sediment [ ] Drinking Water [ ] Air [ ] Other:

CAM Protocols (check all that apply below):

8260 VOC CAM II A [ ]	7470/7471 Hg CAM III B [ ]	Mass DEP VPH CAM IV A [ ]	8081 Pesticides CAM V B [ ]	7196 Hex Cr CAM VI B [ ]	Mass DEP APH CAM IX A [ ]
8270 SVOC CAM II B [ ]	6010 Metals CAM III C [X]	Mass DEP EPH CAM IV B [ ]	8151 Herbicides CAM V C [ ]	8330 Explosives CAM VIII A [ ]	TO-15 VOC CAM IX B [ ]
6010 Metals CAM III A [ ]	6020 Metals CAM III D [ ]	8082 PCB CAM V A [ ]	9014 Total Cyanide/PAC CAM VI A [ ]	6860 Perchlorate CAM VIII B [ ]	

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding time.	[X] Yes [ ] No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	[X] Yes [ ] No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	[X] Yes [ ] No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	[X] Yes [ ] No
E	a. VPH, EPH and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	[ ] Yes [ ] No [ ] Yes [ ] No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	[X] Yes [ ] No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	[X] Yes [ ] No[1]

***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WCS-07-350**

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	[X] Yes [ ] No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s) ?	[ ] Yes [X] No[1]

[1] All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Becky Mason Position: Project Manager

Printed Name: Becky Mason Date: 4/5/13 11:06

This form has been electronically signed and approved

Detection Summary

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Client Sample ID: OC-GW-202D — Lab Sample ID: 480-34803-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	650		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	6200		200	60	ug/L	1		6010	Dissolved
Chloride	220		10	5.6	mg/L	20		300.0	Total/NA
Sulfate	1300		40	7.0	mg/L	20		300.0	Total/NA
Ammonia	180		5.0	2.3	mg/L	250		350.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Specific Conductance	3200		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-202S — Lab Sample ID: 480-34803-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	3.7	J	5.0	1.0	ug/L	1		6010	Dissolved
Chloride	60		0.50	0.28	mg/L	1		300.0	Total/NA
Sulfate	240		10	1.7	mg/L	5		300.0	Total/NA
Ammonia	42		0.50	0.23	mg/L	25		350.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Specific Conductance	920		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-25 — Lab Sample ID: 480-34803-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	9.2		5.0	1.0	ug/L	1		6010	Dissolved
Chloride	170		2.5	1.4	mg/L	5		300.0	Total/NA
Sulfate	82		10	1.7	mg/L	5		300.0	Total/NA
Ammonia	41		0.50	0.23	mg/L	25		350.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Specific Conductance	1300		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-78S — Lab Sample ID: 480-34803-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	8.9		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	87	J	200	60	ug/L	1		6010	Dissolved
Chloride	20		0.50	0.28	mg/L	1		300.0	Total/NA
Sulfate	500		20	3.5	mg/L	10		300.0	Total/NA
Ammonia	43		0.50	0.23	mg/L	25		350.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Specific Conductance	1300		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-GW-79S — Lab Sample ID: 480-34803-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	16		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	120	J	200	60	ug/L	1		6010	Dissolved
Chloride	160		10	5.6	mg/L	20		300.0	Total/NA
Sulfate	1100		40	7.0	mg/L	20		300.0	Total/NA
Ammonia	120		5.0	2.3	mg/L	250		350.1	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Specific Conductance	2600		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Client Sample ID: OC-PZ-16RR — Lab Sample ID: 480-34803-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	24		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	110	J	200	60	ug/L	1		6010	Dissolved
Chloride	150		10	5.6	mg/L	20		300.0	Total/NA
Sulfate	890		40	7.0	mg/L	20		300.0	Total/NA
Ammonia	86		2.0	0.90	mg/L	100		350.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	2100		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-PZ-18R — Lab Sample ID: 480-34803-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	8.9		5.0	1.0	ug/L	1		6010	Dissolved
Chloride	200		2.5	1.4	mg/L	5		300.0	Total/NA
Sulfate	320		10	1.7	mg/L	5		300.0	Total/NA
Ammonia	55		1.0	0.45	mg/L	50		350.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	1300		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-PZ-24 — Lab Sample ID: 480-34803-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	21		5.0	1.0	ug/L	1		6010	Dissolved
Chloride	21		0.50	0.28	mg/L	1		300.0	Total/NA
Sulfate	710		20	3.5	mg/L	10		300.0	Total/NA
Ammonia	49		0.50	0.23	mg/L	25		350.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	1800		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

Client Sample ID: OC-PZ-25 — Lab Sample ID: 480-34803-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	2.5	J	5.0	1.0	ug/L	1		6010	Dissolved
Chloride	16		0.50	0.28	mg/L	1		300.0	Total/NA
Sulfate	470		20	3.5	mg/L	10		300.0	Total/NA
Ammonia	34		0.50	0.23	mg/L	25		350.1	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	890		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: OC-GW-202D

Lab Sample ID: 480-34803-1

Date Collected: 03/20/13 11:00

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	650		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 16:39	1
Aluminum	6200		200	60	ug/L		03/22/13 09:30	03/22/13 16:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		10	5.6	mg/L			03/26/13 15:56	20
Sulfate	1300		40	7.0	mg/L			03/26/13 15:56	20
Ammonia	180		5.0	2.3	mg/L			03/26/13 16:12	250

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	3200		1.0	1.0	umhos/cm			03/27/13 03:50	1

Client Sample ID: OC-GW-202S

Lab Sample ID: 480-34803-2

Date Collected: 03/20/13 09:25

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	3.7	J	5.0	1.0	ug/L		03/22/13 09:30	03/22/13 16:41	1
Aluminum	ND		200	60	ug/L		03/22/13 09:30	03/22/13 16:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	60		0.50	0.28	mg/L			03/23/13 14:46	1
Sulfate	240		10	1.7	mg/L			03/26/13 16:06	5
Ammonia	42		0.50	0.23	mg/L			03/26/13 15:32	25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	920		1.0	1.0	umhos/cm			03/27/13 03:51	1

Client Sample ID: OC-GW-25

Lab Sample ID: 480-34803-3

Date Collected: 03/20/13 09:05

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	9.2		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 16:43	1
Aluminum	ND		200	60	ug/L		03/22/13 09:30	03/22/13 16:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	170		2.5	1.4	mg/L			03/26/13 16:16	5
Sulfate	82		10	1.7	mg/L			03/26/13 16:16	5
Ammonia	41		0.50	0.23	mg/L			03/26/13 15:33	25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	1300		1.0	1.0	umhos/cm			03/27/13 03:52	1

Client Sample ID: OC-GW-78S

Lab Sample ID: 480-34803-4

Date Collected: 03/20/13 09:50

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	8.9		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 16:59	1
Aluminum	87	J	200	60	ug/L		03/22/13 09:30	03/22/13 16:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		0.50	0.28	mg/L			03/23/13 15:06	1
Sulfate	500		20	3.5	mg/L			03/26/13 16:26	10
Ammonia	43		0.50	0.23	mg/L			03/26/13 15:34	25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	1300		1.0	1.0	umhos/cm			03/27/13 03:54	1

Client Sample ID: OC-GW-79S

Lab Sample ID: 480-34803-5

Date Collected: 03/20/13 12:35

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	16		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 17:01	1
Aluminum	120	J	200	60	ug/L		03/22/13 09:30	03/22/13 17:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		10	5.6	mg/L			03/26/13 17:37	20
Sulfate	1100		40	7.0	mg/L			03/26/13 17:37	20
Ammonia	120		5.0	2.3	mg/L			03/26/13 16:13	250

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	2600		1.0	1.0	umhos/cm			03/27/13 03:55	1

Client Sample ID: OC-PZ-16RR

Lab Sample ID: 480-34803-6

Date Collected: 03/20/13 12:55

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	24		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 17:04	1
Aluminum	110	J	200	60	ug/L		03/22/13 09:30	03/22/13 17:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		10	5.6	mg/L			03/26/13 17:47	20
Sulfate	890		40	7.0	mg/L			03/26/13 17:47	20
Ammonia	86		2.0	0.90	mg/L			03/26/13 16:14	100

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	2100		1.0	1.0	umhos/cm			03/27/13 03:57	1

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Client Sample ID: OC-PZ-18R

Lab Sample ID: 480-34803-8

Date Collected: 03/20/13 12:05

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	8.9		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 17:06	1
Aluminum	ND		200	60	ug/L		03/22/13 09:30	03/22/13 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		2.5	1.4	mg/L			03/26/13 17:57	5
Sulfate	320		10	1.7	mg/L			03/26/13 17:57	5
Ammonia	55		1.0	0.45	mg/L			03/26/13 16:15	50

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	1300		1.0	1.0	umhos/cm			03/27/13 08:24	1

Client Sample ID: OC-PZ-24

Lab Sample ID: 480-34803-9

Date Collected: 03/20/13 11:15

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	21		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 17:08	1
Aluminum	ND		200	60	ug/L		03/22/13 09:30	03/22/13 17:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21		0.50	0.28	mg/L			03/23/13 15:47	1
Sulfate	710		20	3.5	mg/L			03/26/13 18:07	10
Ammonia	49		0.50	0.23	mg/L			03/26/13 15:38	25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	1800		1.0	1.0	umhos/cm			03/27/13 03:58	1

Client Sample ID: OC-PZ-25

Lab Sample ID: 480-34803-10

Date Collected: 03/20/13 10:30

Matrix: Ground Water

Date Received: 03/22/13 12:30

Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	2.5	J	5.0	1.0	ug/L		03/22/13 09:30	03/22/13 17:11	1
Aluminum	ND		200	60	ug/L		03/22/13 09:30	03/22/13 17:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		0.50	0.28	mg/L			03/23/13 15:57	1
Sulfate	470		20	3.5	mg/L			03/26/13 18:17	10
Ammonia	34		0.50	0.23	mg/L			03/26/13 15:39	25

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	890		1.0	1.0	umhos/cm			03/27/13 04:01	1

Method: 6010 - Metals (ICP)

Lab Sample ID: MB 480-108365/11-B
Matrix: Water
Analysis Batch: 108983

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 108663

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		5.0	1.0	ug/L		03/22/13 09:30	03/22/13 16:34	1
Aluminum	ND		200	60	ug/L		03/22/13 09:30	03/22/13 16:34	1

Lab Sample ID: LCS 480-108365/12-B
Matrix: Water
Analysis Batch: 108983

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 108663

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			200	208		ug/L		104	80 - 120		
Aluminum			10000	9490		ug/L		95	80 - 120		

Lab Sample ID: LCSD 480-108365/31-B
Matrix: Water
Analysis Batch: 108983

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved
Prep Batch: 108663

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium			200	220		ug/L		110	80 - 120	6	20
Aluminum			10000	9840		ug/L		98	80 - 120	4	20

Lab Sample ID: 480-34803-3 MS
Matrix: Ground Water
Analysis Batch: 108983

Client Sample ID: OC-GW-25
Prep Type: Dissolved
Prep Batch: 108663

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium	9.2		200	216		ug/L		104	75 - 125		
Aluminum	ND		10000	10000		ug/L		100	75 - 125		

Lab Sample ID: 480-34803-3 MSD
Matrix: Ground Water
Analysis Batch: 108983

Client Sample ID: OC-GW-25
Prep Type: Dissolved
Prep Batch: 108663

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	9.2		200	215		ug/L		103	75 - 125	0	20
Aluminum	ND		10000	10000		ug/L		100	75 - 125	0	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-108768/124
Matrix: Water
Analysis Batch: 108768

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			03/23/13 12:55	1
Sulfate	ND	^	2.0	0.35	mg/L			03/23/13 12:55	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 480-108768/123
Matrix: Water
Analysis Batch: 108768

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			20.0	19.1		mg/L		95	90 - 110		
Sulfate			20.0	19.7	^	mg/L		99	90 - 110		

Lab Sample ID: 480-34803-10 MS
Matrix: Ground Water
Analysis Batch: 108768

Client Sample ID: OC-PZ-25
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	16		25.0	38.7		mg/L		93	90 - 110		

Lab Sample ID: 480-34803-10 MSD
Matrix: Ground Water
Analysis Batch: 108768

Client Sample ID: OC-PZ-25
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	16		25.0	39.2		mg/L		95	90 - 110	1	20

Lab Sample ID: MB 480-109048/100
Matrix: Water
Analysis Batch: 109048

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			03/26/13 13:24	1
Sulfate	ND		2.0	0.35	mg/L			03/26/13 13:24	1

Lab Sample ID: LCS 480-109048/99
Matrix: Water
Analysis Batch: 109048

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			20.0	20.2		mg/L		101	90 - 110		
Sulfate			20.0	20.3		mg/L		101	90 - 110		

Lab Sample ID: 480-34803-4 MS
Matrix: Ground Water
Analysis Batch: 109048

Client Sample ID: OC-GW-78S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	21		250	21.4	F	mg/L		0.2	90 - 110		
Sulfate	500		250	499	F	mg/L		-1	90 - 110		

Lab Sample ID: 480-34803-4 MSD
Matrix: Ground Water
Analysis Batch: 109048

Client Sample ID: OC-GW-78S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	21		250	258	F	mg/L		95	90 - 110	169	20
Sulfate	500		250	725	F	mg/L		89	90 - 110	37	20

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 480-109050/124
Matrix: Water
Analysis Batch: 109050

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			03/26/13 17:27	1
Sulfate	ND		2.0	0.35	mg/L			03/26/13 17:27	1

Lab Sample ID: LCS 480-109050/123
Matrix: Water
Analysis Batch: 109050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0	20.8		mg/L		104	90 - 110
Sulfate	20.0	21.4		mg/L		107	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-109321/123
Matrix: Water
Analysis Batch: 109321

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			03/26/13 15:19	1

Lab Sample ID: MB 480-109321/147
Matrix: Water
Analysis Batch: 109321

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			03/26/13 15:43	1

Lab Sample ID: MB 480-109321/171
Matrix: Water
Analysis Batch: 109321

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			03/26/13 16:07	1

Lab Sample ID: LCS 480-109321/124
Matrix: Water
Analysis Batch: 109321

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.997		mg/L		100	90 - 110

Lab Sample ID: LCS 480-109321/148
Matrix: Water
Analysis Batch: 109321

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.999		mg/L		100	90 - 110

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 480-109321/172
Matrix: Water
Analysis Batch: 109321

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia			1.00	1.01		mg/L		101	90 - 110		

Lab Sample ID: 480-34803-10 MS
Matrix: Ground Water
Analysis Batch: 109321

Client Sample ID: OC-PZ-25
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ammonia	34		5.00	40.7	4	mg/L		130	54 - 150		

Metals

Prep Batch: 108663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-1	OC-GW-202D	Dissolved	Ground Water	3005A	
480-34803-2	OC-GW-202S	Dissolved	Ground Water	3005A	
480-34803-3	OC-GW-25	Dissolved	Ground Water	3005A	
480-34803-3 MS	OC-GW-25	Dissolved	Ground Water	3005A	
480-34803-3 MSD	OC-GW-25	Dissolved	Ground Water	3005A	
480-34803-4	OC-GW-78S	Dissolved	Ground Water	3005A	
480-34803-5	OC-GW-79S	Dissolved	Ground Water	3005A	
480-34803-6	OC-PZ-16RR	Dissolved	Ground Water	3005A	
480-34803-8	OC-PZ-18R	Dissolved	Ground Water	3005A	
480-34803-9	OC-PZ-24	Dissolved	Ground Water	3005A	
480-34803-10	OC-PZ-25	Dissolved	Ground Water	3005A	
LCS 480-108365/12-B	Lab Control Sample	Dissolved	Water	3005A	
LCSD 480-108365/31-B	Lab Control Sample Dup	Dissolved	Water	3005A	
MB 480-108365/11-B	Method Blank	Dissolved	Water	3005A	

Analysis Batch: 108983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-1	OC-GW-202D	Dissolved	Ground Water	6010	108663
480-34803-2	OC-GW-202S	Dissolved	Ground Water	6010	108663
480-34803-3	OC-GW-25	Dissolved	Ground Water	6010	108663
480-34803-3 MS	OC-GW-25	Dissolved	Ground Water	6010	108663
480-34803-3 MSD	OC-GW-25	Dissolved	Ground Water	6010	108663
480-34803-4	OC-GW-78S	Dissolved	Ground Water	6010	108663
480-34803-5	OC-GW-79S	Dissolved	Ground Water	6010	108663
480-34803-6	OC-PZ-16RR	Dissolved	Ground Water	6010	108663
480-34803-8	OC-PZ-18R	Dissolved	Ground Water	6010	108663
480-34803-9	OC-PZ-24	Dissolved	Ground Water	6010	108663
480-34803-10	OC-PZ-25	Dissolved	Ground Water	6010	108663
LCS 480-108365/12-B	Lab Control Sample	Dissolved	Water	6010	108663
LCSD 480-108365/31-B	Lab Control Sample Dup	Dissolved	Water	6010	108663
MB 480-108365/11-B	Method Blank	Dissolved	Water	6010	108663

General Chemistry

Analysis Batch: 108768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-2	OC-GW-202S	Total/NA	Ground Water	300.0	
480-34803-4	OC-GW-78S	Total/NA	Ground Water	300.0	
480-34803-9	OC-PZ-24	Total/NA	Ground Water	300.0	
480-34803-10	OC-PZ-25	Total/NA	Ground Water	300.0	
480-34803-10 MS	OC-PZ-25	Total/NA	Ground Water	300.0	
480-34803-10 MSD	OC-PZ-25	Total/NA	Ground Water	300.0	
LCS 480-108768/123	Lab Control Sample	Total/NA	Water	300.0	
MB 480-108768/124	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 109048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-1	OC-GW-202D	Total/NA	Ground Water	300.0	
480-34803-2	OC-GW-202S	Total/NA	Ground Water	300.0	
480-34803-3	OC-GW-25	Total/NA	Ground Water	300.0	

General Chemistry (Continued)

Analysis Batch: 109048 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-4	OC-GW-78S	Total/NA	Ground Water	300.0	
480-34803-4 MS	OC-GW-78S	Total/NA	Ground Water	300.0	
480-34803-4 MSD	OC-GW-78S	Total/NA	Ground Water	300.0	
LCS 480-109048/99	Lab Control Sample	Total/NA	Water	300.0	
MB 480-109048/100	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 109050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-5	OC-GW-79S	Total/NA	Ground Water	300.0	
480-34803-6	OC-PZ-16RR	Total/NA	Ground Water	300.0	
480-34803-8	OC-PZ-18R	Total/NA	Ground Water	300.0	
480-34803-9	OC-PZ-24	Total/NA	Ground Water	300.0	
480-34803-10	OC-PZ-25	Total/NA	Ground Water	300.0	
LCS 480-109050/123	Lab Control Sample	Total/NA	Water	300.0	
MB 480-109050/124	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 109321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-1	OC-GW-202D	Total/NA	Ground Water	350.1	
480-34803-2	OC-GW-202S	Total/NA	Ground Water	350.1	
480-34803-3	OC-GW-25	Total/NA	Ground Water	350.1	
480-34803-4	OC-GW-78S	Total/NA	Ground Water	350.1	
480-34803-5	OC-GW-79S	Total/NA	Ground Water	350.1	
480-34803-6	OC-PZ-16RR	Total/NA	Ground Water	350.1	
480-34803-8	OC-PZ-18R	Total/NA	Ground Water	350.1	
480-34803-9	OC-PZ-24	Total/NA	Ground Water	350.1	
480-34803-10	OC-PZ-25	Total/NA	Ground Water	350.1	
480-34803-10 MS	OC-PZ-25	Total/NA	Ground Water	350.1	
LCS 480-109321/124	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-109321/148	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-109321/172	Lab Control Sample	Total/NA	Water	350.1	
MB 480-109321/123	Method Blank	Total/NA	Water	350.1	
MB 480-109321/147	Method Blank	Total/NA	Water	350.1	
MB 480-109321/171	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 109351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-1	OC-GW-202D	Total/NA	Ground Water	SM 2510B	
480-34803-2	OC-GW-202S	Total/NA	Ground Water	SM 2510B	
480-34803-3	OC-GW-25	Total/NA	Ground Water	SM 2510B	
480-34803-4	OC-GW-78S	Total/NA	Ground Water	SM 2510B	
480-34803-5	OC-GW-79S	Total/NA	Ground Water	SM 2510B	
480-34803-6	OC-PZ-16RR	Total/NA	Ground Water	SM 2510B	
480-34803-9	OC-PZ-24	Total/NA	Ground Water	SM 2510B	
480-34803-10	OC-PZ-25	Total/NA	Ground Water	SM 2510B	
LCS 480-109351/1	Lab Control Sample	Total/NA	Water	SM 2510B	

Analysis Batch: 109389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-34803-8	OC-PZ-18R	Total/NA	Ground Water	SM 2510B	
LCS 480-109389/1	Lab Control Sample	Total/NA	Water	SM 2510B	

Lab Chronicle

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Client Sample ID: OC-GW-202D

Lab Sample ID: 480-34803-1

Date Collected: 03/20/13 11:00

Matrix: Ground Water

Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 16:39	MM	TAL BUF
Total/NA	Analysis	300.0		20	109048	03/26/13 15:56	KC	TAL BUF
Total/NA	Analysis	350.1		250	109321	03/26/13 16:12	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 03:50	LK	TAL BUF

Client Sample ID: OC-GW-202S

Lab Sample ID: 480-34803-2

Date Collected: 03/20/13 09:25

Matrix: Ground Water

Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 16:41	MM	TAL BUF
Total/NA	Analysis	300.0		1	108768	03/23/13 14:46	KC	TAL BUF
Total/NA	Analysis	300.0		5	109048	03/26/13 16:06	KC	TAL BUF
Total/NA	Analysis	350.1		25	109321	03/26/13 15:32	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 03:51	LK	TAL BUF

Client Sample ID: OC-GW-25

Lab Sample ID: 480-34803-3

Date Collected: 03/20/13 09:05

Matrix: Ground Water

Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 16:43	MM	TAL BUF
Total/NA	Analysis	300.0		5	109048	03/26/13 16:16	KC	TAL BUF
Total/NA	Analysis	350.1		25	109321	03/26/13 15:33	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 03:52	LK	TAL BUF

Client Sample ID: OC-GW-78S

Lab Sample ID: 480-34803-4

Date Collected: 03/20/13 09:50

Matrix: Ground Water

Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 16:59	MM	TAL BUF
Total/NA	Analysis	300.0		1	108768	03/23/13 15:06	KC	TAL BUF
Total/NA	Analysis	300.0		10	109048	03/26/13 16:26	KC	TAL BUF
Total/NA	Analysis	350.1		25	109321	03/26/13 15:34	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 03:54	LK	TAL BUF

Lab Chronicle

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Client Sample ID: OC-GW-79S

Lab Sample ID: 480-34803-5

Date Collected: 03/20/13 12:35
Matrix: Ground Water
Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 17:01	MM	TAL BUF
Total/NA	Analysis	300.0		20	109050	03/26/13 17:37	KC	TAL BUF
Total/NA	Analysis	350.1		250	109321	03/26/13 16:13	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 03:55	LK	TAL BUF

Client Sample ID: OC-PZ-16RR

Lab Sample ID: 480-34803-6

Date Collected: 03/20/13 12:55
Matrix: Ground Water
Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 17:04	MM	TAL BUF
Total/NA	Analysis	300.0		20	109050	03/26/13 17:47	KC	TAL BUF
Total/NA	Analysis	350.1		100	109321	03/26/13 16:14	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 03:57	LK	TAL BUF

Client Sample ID: OC-PZ-18R

Lab Sample ID: 480-34803-8

Date Collected: 03/20/13 12:05
Matrix: Ground Water
Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 17:06	MM	TAL BUF
Total/NA	Analysis	300.0		5	109050	03/26/13 17:57	KC	TAL BUF
Total/NA	Analysis	350.1		50	109321	03/26/13 16:15	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109389	03/27/13 08:24	EGN	TAL BUF

Client Sample ID: OC-PZ-24

Lab Sample ID: 480-34803-9

Date Collected: 03/20/13 11:15
Matrix: Ground Water
Date Received: 03/22/13 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 17:08	MM	TAL BUF
Total/NA	Analysis	300.0		1	108768	03/23/13 15:47	KC	TAL BUF
Total/NA	Analysis	300.0		10	109050	03/26/13 18:07	KC	TAL BUF
Total/NA	Analysis	350.1		25	109321	03/26/13 15:38	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 03:58	LK	TAL BUF

Lab Chronicle

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Client Sample ID: OC-PZ-25
Date Collected: 03/20/13 10:30
Date Received: 03/22/13 12:30

Lab Sample ID: 480-34803-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			108663	03/22/13 09:30	JM	TAL BUF
Dissolved	Analysis	6010		1	108983	03/22/13 17:11	MM	TAL BUF
Total/NA	Analysis	300.0		1	108768	03/23/13 15:57	KC	TAL BUF
Total/NA	Analysis	300.0		10	109050	03/26/13 18:17	KC	TAL BUF
Total/NA	Analysis	350.1		25	109321	03/26/13 15:39	KS	TAL BUF
Total/NA	Analysis	SM 2510B		1	109351	03/27/13 04:01	LK	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-13
California	NELAP	9	1169CA	09-30-13
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAP	4	E87672	06-30-13
Georgia	State Program	4	N/A	03-31-13
Georgia	State Program	4	956	06-30-13
Georgia	State Program	4	956	06-30-13
Illinois	NELAP	5	200003	09-30-13
Iowa	State Program	7	374	03-01-13
Kansas	NELAP	7	E-10187	01-31-14
Kentucky	State Program	4	90029	12-31-13
Kentucky (UST)	State Program	4	30	04-01-13
Louisiana	NELAP	6	02031	06-30-13
Maine	State Program	1	NY00044	12-04-13
Maryland	State Program	3	294	03-31-13
Massachusetts	State Program	1	M-NY044	06-30-13
Michigan	State Program	5	9937	04-01-13
Minnesota	NELAP	5	036-999-337	12-31-13
New Hampshire	NELAP	1	2973	09-11-13
New Hampshire	NELAP	1	2337	11-17-13
New Jersey	NELAP	2	NY455	06-30-13
New York	NELAP	2	10026	03-31-13
North Dakota	State Program	8	R-176	03-31-13
Oklahoma	State Program	6	9421	08-31-13
Oregon	NELAP	10	NY200003	06-09-13
Pennsylvania	NELAP	3	68-00281	07-31-13
Rhode Island	State Program	1	LAO00328	12-31-13
Tennessee	State Program	4	TN02970	04-01-13
Texas	NELAP	6	T104704412-11-2	07-31-13
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAP	3	460185	09-14-13
Washington	State Program	10	C784	02-10-14
West Virginia DEP	State Program	3	252	09-30-13
Wisconsin	State Program	5	998310390	08-31-13

Method Summary

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Method	Method Description	Protocol	Laboratory
6010	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
SM 2510B	Conductivity, Specific Conductance	SM	TAL BUF

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: Olin Corporation
Project/Site: Olin Chemical Wilmington Groundwater

TestAmerica Job ID: 480-34803-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-34803-1	OC-GW-202D	Ground Water	03/20/13 11:00	03/22/13 12:30
480-34803-2	OC-GW-202S	Ground Water	03/20/13 09:25	03/22/13 12:30
480-34803-3	OC-GW-25	Ground Water	03/20/13 09:05	03/22/13 12:30
480-34803-4	OC-GW-78S	Ground Water	03/20/13 09:50	03/22/13 12:30
480-34803-5	OC-GW-79S	Ground Water	03/20/13 12:35	03/22/13 12:30
480-34803-6	OC-PZ-16RR	Ground Water	03/20/13 12:55	03/22/13 12:30
480-34803-8	OC-PZ-18R	Ground Water	03/20/13 12:05	03/22/13 12:30
480-34803-9	OC-PZ-24	Ground Water	03/20/13 11:15	03/22/13 12:30
480-34803-10	OC-PZ-25	Ground Water	03/20/13 10:30	03/22/13 12:30

Login Sample Receipt Checklist

Client: Olin Corporation

Job Number: 480-34803-1

Login Number: 34803
List Number: 1
Creator: Kolb, Chris M

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	No: No sample date and/or time on COC, logged in per container labels.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	False	no volume received for OC-PZ-17RR
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Brian Guichard/Brendan Lennon	Lab PM: Mason, Becky C	Carrier Tracking No(s):	COC No: 480-33492-8566.1
Client Contact: Mr. James Cashwell	Phone: 9786586121	E-Mail: becky.mason@testamericainc.com		Page: Page 1 of 2
Company: Olin Corporation				Job #: 480-34803

Address: PO BOX 248	Due Date Requested:
City: Charleston	TAT Requested (days):
State, Zip: TN, 37310-0248	
Phone:	PO #: REWI0020
Email: jmcashwell@olin.com	WO #:
Project Name: Groundwater Quarterly Event Desc: Groundwater Quarterly (2, 5,	Project #: 48006612
Site: Massachusetts	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D - (MOD) Local Method	350.1 - Ammonia	6010MCP - (MOD) 6010 MCP Custom analyte list	2510B - Specific Conductance	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	S	D	N		
OC-GW-202S	3-20-13		G	Water	✓		X	X	X	X	4	
OC-GW-202D		11:00	G	Water	✓		X	X	X	X	4	
OC-GW-25		9:05	G	Water	✓		X	X	X	X	4	
OC-GW-78S		9:50	G	Water	✓		X	X	X	X	4	
OC-GW-79S		12:35	G	Water	✓		X	X	X	X	4	
OC-PZ-16RR		12:55	G	Water	✓		X	X	X	X	4	
OC-PZ-17RR		9:25	G	Water	✓		X	X	X	X	4	
OC-PZ-18R		12:05	G	Water	✓		X	X	X	X	4	
OC-PZ-24		11:15	G	Water	✓		X	X	X	X	4	
OC-PZ-25	↓	10:30	G	Water	✓		X	X	X	X	4	
~~OC-DUP-GW~~				Water								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Brian Guichard	Date/Time: 3-21-13	Company	Received by: M.	Date/Time: 3/21/13 12:50	Company TAL
Relinquished by: M.	Date/Time: 3/21/13 1630	Company TAL	Received by:	Date/Time: 3/22/13 1230	Company
Relinquished by	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.0 ICE#1